

REMARKS

Applicants submit the following remarks in response to the restriction requirement mailed August 6, 2008. Claims 1 and 72-145 are currently pending in this application and are subject to a restriction requirement. No claims are amended.

Interview Summary

Applicants thank Examiners Lorengo and Smith for the courtesy of the telephonic interview held October 2, 2008 with counsel for Applicants. During the interview, counsel for Applicants discussed the nature of the invention and the unity of invention rejection. In particular, attorneys for Applicant clarified that a special technical feature, which is not taught by the prior art, and which is common to all claims, is the presence or use of a solid reactor filling material.

Claim Restriction

The previous Restriction Requirement mailed January 23, 2008, required election of one of the following three groups of claims:

Group I: Claims 1, and 75-136, which according to the Examiner are drawn to a method of manufacturing a metal oxide, metal oxyhydroxide or metal hydroxide product. *See Office Action at p. 2.*

Group II: Claims 72-74, which according to the Examiner are drawn to an apparatus for manufacturing a metal oxide, metal oxyhydroxide, or metal hydroxide product. *See Office Action at p. 2.*

Group III: Claims 137-144, which according to the Examiner are drawn to a metal oxide, metal oxyhydroxide or metal hydroxide product. *See Office Action at p. 2.*

In the Amendment and Response to Restriction Requirement filed May 29, 2008, Applicants elected Group I, claims 1 and 75-136, with traverse. In response to Applicants arguments, the current Restriction Requirement states:

“[Applicant’s] traversal is on the ground(s) that the claims share the special technical feature which the Applicant considers to be that the resulting product is obtained on a solid reactor material. This is not found persuasive because the special technical feature shared between the inventions is a metal oxide, metal oxidhydroxide or metal hydroxide product. This product is disclosed in the Sarrade reference.”

As clarified during the interview, the presence or use of a solid reactor filling material is a “point of novelty” that distinguishes the present invention from the prior art and is a special technical feature shared by all claims. Applicants respectfully submit that unity of invention exists between all claims because the claims share the special technical feature of a solid reactor filling material—a feature not disclosed or suggested by U.S. Patent No. 6,387,341 to Sarrade *et al.* (“Sarrade”). To support this assertion, Applicants submit herewith an article entitled, “*Low Temperature Synthesis of Metal Oxides by Supercritical Seed Enhanced Crystallization (SSEC) Process*” authored, *inter alia*, by the inventors, which demonstrates the importance of seeding material. As further support of the solid reactor material being a special technical feature of the claimed invention, and furthermore its generic application, Applicants note that the claimed methods have been reduced to practice using an array of diverse solid reactor seeding materials including natural fibers (flax); metal fibers (steel wool); a ceramic material; hydrophobic polypropylene (PP) fibers and hydrophilic polypropylene (PP) fibers.

Moreover, while not binding on the Office, Applicants note that the International Search Report does not include a unity of invention rejection, and Applicants have obtained patents in other countries to similar claims without any unity of invention rejections. Further, Applicants

submit that this favorable disposition of the claims in other jurisdictions supports Applicants' position that the claimed methods and apparatus, which all require as an essential feature a solid reactor material, are novel and inventive and therefore should be examined as a unitary invention.

Accordingly, Applicants respectfully request reconsideration of the withdrawal of claims 72-74 and 137-144 from examination, and request that all claims be examined.

Species Restriction

In order to be fully responsive to the outstanding Restriction Requirement, Applicants elect herein a single species from each of the groups listed below. *See* Office Action at 3-6. (However, based on the recent telephonic interview Applicants understand that the restriction and election requirement may be modified such that the examination of the claimed invention takes into account an important, distinguishing feature of the claimed invention, i.e., the solid reactor filling material.) **Applicants elect the species shown in bold:**

Species (a)

i. the product is substantially crystalline (Claim 76)

ii. the product is substantially amorphous (Claim 77)

iii. the product is a mixture of several different phases (Claim 78)

Species (b)

iv. the temperature is kept at a fixed temperature (Claim 82)

v. the temperature is an increasing temperature (Claim 83)

vi. the temperature is a decreasing temperature (Claim 84)

vii. the temperature profile is an arbitrary combination (Claim 85)

Species (c)

viii. the pressure is kept at a fixed pressure (Claim 87)

ix. the pressure is an increasing pressure (Claim 88)

x. the pressure is a decreasing pressure (Claim 89)

xi. the pressure profile is an arbitrary combination (Claim 90)

Species (d)

xii. the supercritical solvent is CO₂ (Claims 91 -92)

xiii. the supercritical solvent is isopropanol (Claims 93-94)

Species (e)

xiv. the supercritical solvent is brought into phase before introduction (Claim 95)

xv. the supercritical solvent is brought into phase after introduction (Claim 96)

Species (f)

xvi. introducing a plurality of different metal precursors into the reactor (Claim 100)

xvii. metal precursor is metal alkoxide (Claims 101 -104)

xviii. metal-containing precursor is a metal salt (Claims 105-107)

Species (g)

xix. the solid reactor filling material comprises a polymer (Claims 11 7-119)

xx. the solid reactor filling material comprises a metal (Claims 120-121)

xxi. the solid reactor filling material comprises a metal oxide (Claims 122-123, 127)

xxii. the solid reactor filling material comprises a ceramic (Claim 124)

xxiii. the solid reactor filling material comprises a metal sulfate (Claim 125)

xxiv. the solid reactor filling material comprises a metal halide (Claim 126)

Species (h)

xxv. product is separable from the solid reactor filling material with no further treatments of the solid reactor filling material (Claim 130)

xxvi. product is separable from the solid reactor filling material without substantially degrading the solid reactor filling material (Claim 131)

xxvii. product is separable from the solid reactor filling material in a way that allows the solid reactor filling material to be re-used as solid reactor filling material (Claim 132)

xxviii. product is separable from the solid reactor filling material by flushing the solid reactor filling material in a fluid (Claim 133)

xxix. product is separable from the solid reactor filling material by vacuum means (Claim 134)

xxx. product is separable from the solid reactor filling material by blowing means (Claim 135)

xxxi. product is separable from the solid reactor filling material by ultrasonic means (Claim 136)

Claims 1, 72-75, 78-81, 85-86, 90-92, 96-99, 101-104, 108-119, 131, and 137-145 read on the elected species.

Conclusion

Applicants submit that all claims are in condition for allowance; notice to that effect is hereby solicited. Should any issues remain to be discussed in this application, the examiner is invited to contact the undersigned by telephone.

Respectfully submitted,

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